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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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Jeanette Petzold

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| Appl No. | : 10/089,577 | Confirmation No. 2523 |
| Applicant | : Vance E. Bolding, et al. | |
| Filed | : March 29, 2002 | |
| Title | : HORIZONTAL DRILL PIPE RACKER AND DELIVERY SYSTEM | |
| TC/A.U. | : 3652 | |
| Examiner | : Krizek, Janice Lee | |
| Docket No. | : 39373/HAC/G602 | |
| Customer No. | : 23363 | |



**RESPONSE TO OFFICE ACTION**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Post Office Box 7068
Pasadena, CA 91109-7068
March 1, 2004

Commissioner:

This paper responds to the Office action mailed February 11, 2004 in this application.

Reconsideration and reexamination of this application are requested.

This application and the Office action of February 11, 2004 were the subject of a telephone discussion on February 24, 2004 between the Office's representative, Examiner J. Krizek, and the undersigned counsel for applicants. Counsel noted that this application is a US national stage application, filed under 35 U.S.C. 371 based on prior PCT/US00/27043 in which the PTO, by the same representative, searched the PCT application and issued an IPER (Form PCT/IPEA/409) which stated that the 53 claims of that application, as amended, met the patentability criteria of PCT Articles 33(2) - 33(4). Those PCT Article 33 criteria are substantially the same as the US patentability criteria of utility, novelty and unobviousness. Therefore, counsel noted that the claims addressed by the action of February 11, 2004 herein are

claims which the Office "allowed" in the predecessor PCT application. Moreover, counsel noted that the references cited in the action of February 11, 2004 herein are the very same seven references cited in the PCT ISR of 17 January 2001. Further, counsel noted that the PCT ISR noted the "relevance" of USP 3,978,994 (Woolslayer et al.) to PCT claims 1-4, 16, 42-44 and 49, and that the action of February 11, 2004, relies on Woolslayer et al. in support of a Section 102(b) rejection of claims 1-4, 16, 42-44 and 49. The only difference between the PCT claims as which Woolslayer et al. was cited and the claims herein rejected on Woolslayer et al is that the PCT claims were original claims, whereas the claims herein rejected on Woolslayer are amended claims identical to the claims favorably treated in the PCT IPER (Form 409).

In light of the foregoing, counsel expressed continuing concern about the merit and propriety of the restriction requirement maintained by the action of February 11, 2004, and also expressed the position that all claims present herein are allowable and earlier were found (in the PCT application) to be allowable.

The Office's representative is understood to have invited remarks pointing out why claims 36-41 are allowable over Woolslayer et al, as a reason why the Office should withdraw the restriction requirement. Other reasons in support of a traverse are set forth in applicant's earlier Response To Restriction Requirement herein, which reasons are re-advanced for reconsideration by the Office.

The Relevant Disclosures of Woolslayer et al.

As shown in Figs. 2 and 6 of Woolslayer et al., a multilevel drill pipe storage rack is mounted on wheels 3 which ride on tracks (rails) 4 which are disposed transversly of a drilling derrick 2. The derrick is the place of use of pipe stored in the rack. Wheels 3 support a carriage frame defined by lower horizontal beams 7, vertical plates 8, and upper horizontal and longitudinal beams 9. The carriage supports transversly oriented and longitudinally spaced pipe support members; each pipe support member is arranged (See Fig. 6) to support a plurality of elongate pipe stands 26 which are aligned with the length of the carriage and are spaced at

intervals across the width of the carriage. A set of bottom pipe support members 23 are affixed to the top of the carriage, whereas the other sets of pipe support members (fingers) 21 located above members 23 are movably carried in the carriage. As shown in Fig. 6, the right ends of support members (fingers) 21 are hinged on shafts 20 which are carried in upwardly and outwardly inclined channels 19 which are affixed to the carriage. See Woolslayer et a., Col. 1, line 35 through Col. 2, line 35.

If the storage rack is filled with pipe as shown in Fig. 6, the first pipe stand 26 to be removed from the rack is the pipe at the upper left corner of the array shown in Fig. 6. That pipestand is lifted from its supporting fingers 21 by lift hooks 47 (Figs. 2-4) carried at the ends of horizontal and transverse fixed-length arms 46 which are affixed to the movable ends of pivotable legs 42 which have their opposite ends pivoted about transverse axis defined at stationary stands 43 (Figs 1 and 2). Legs 42 are tied together adjacent their movable ends by a link 44 (Fig. 1). Legs 42, as linked together, are swingable relative to stands 43 by ram 48. When ram 48 is operated, lift hooks 47 move along arcuate paths; those paths are in a common vertical plane which is fixed relative to both derrick 2 and the foundation to which rails 4 are affixed. Operation of ram 48 causes the lift hooks to move vertically to deliver a pipe stand supported by the hooks to a pipe transfer mechanism 49, 50 which is operated to move a pipe stand from hooks 47 into derrick 2. See Woolslayer et al., Co. 2, line 63 to Col. 3, line 34.

From the foregoing, it is apparent (as made clear by Woolslayer et al. at Col. 3, lines 24-34) that the next pipe stand 26 to be removed from the rack is the one just to the right of the one at the upper left corner of the array shown in Fig. 6. Because lift hooks 47 move in a fixed vertical plane located parallel to the length of the carriage and the rack thereon, engagement of that second pipestand by lift hooks 47 requires that the carriage be moved laterally along rails 4 to place that next pipe stand in that vertical plane. Such movement of the rack carriage is produced by rotation of a drive screw 22 by a suitable motor; the drive screws cooperate with nuts 13 affixed to the carriage. See Col. 1, line 48 to Col. 2, line 2.

Once the pipe stands in the top layer of the array shown in Fig. 6 have been removed from their supporting fingers 21, that top set of fingers must be moved to expose the second layer of pipe stands. Those top fingers, because hinged to horizontal and longitudinal shafts 20 at channels 19 (Fig. 6), can move only vertically to positions shown in phantom line in Fig. 6 in which they are vertical and extend upward from their hinged ends. Such movement of fingers 21 is produced by operation of the cable and sheave system shown in Figs 6 and 7 and described at Col. 2, lines 36-62 and Col. 3, lines 35 to Col. 4, line 7.

The utility of the above-described structure, as disclosed by Woolslayer et al. is in the context of an oil well drilling derrick (Col. 1, lines 4-20). It is well known that in such derrick, drill pipe is rotated about and moved along a vertical axis which is fixed in the derrick. Woolslayer et al. appears to teach that such vertical axis is in the same vertical plane in which lift hooks 47 move and in which pipestands are moved by transfer mechanism 49, 50. That vertical axis is the true or ultimate place of use of the pipe stands stored in the movable storage rack.

In view of the foregoing, Woolslayer et al. teaches two things which are relevant here. First, the pipe storage rack, including pipe support fingers 21, is moved bodily, transversely across the vertical and longitudinal plane in which lift hooks are moved and in which the derrick's vertical axis is located. Second, as the pipe support fingers for each layer of pipe in the multi-layer array of the rack are emptied, the fingers are moved in transverse vertical planes (which are perpendicular to the longitudinal vertical plane in which hooks 47 move and in which the derrick vertical axis preferably is located) to vertical retracted positions so that access is provided to the next lower layer of pipes in the rack array.

Present claims 1-4

Claim 1 (on which claims 2-4 are dependent) describes the pipe support members as having horizontal retracted positions in which they are removed from the array of plural layers of pipe lengths. Woolslayer et al. disclose and suggest only vertical retracted positions for pipe

support fingers 21. Claims 1-4 are allowable over Woolslayer et al. under §102(b) and also under §103 even when that reference is considered with others of the cited references.

Present claim 16

Claim 16 (on which claims 17-35 are dependent - claim 32 was preliminarily amended to be only single dependent) describes a pipe storage bin which is stationary relative to a place of pipe use. The present specification contemplates that the place of pipe use can be the vertical axis of a drilling derrick; see specification at page 1, lines 35-36 and page 6, lines 4-5. Woolslayer et al. disclose and suggest a pipe storage arrangement in which the entire storage rack structure is moved bodily relative to a place of use of pipe stored in the rack. The Woolslayer et al. arrangement becomes inoperative if the storage rack cannot be moved bodily relative to the paths of movement of lift hooks 47 which are constrained, by the pipe lifting and transfer mechanisms they disclose, to movement in a fixed plane. Consequently, the structural combination of claim 16 is allowable over Woolslayer et al. under §102(b) and also under §103 even when that reference is considered with others of the cited references.

Present Claims 42-44

Claim 42, on which claims 43-44 are dependent, describes a method in which plural pipe lengths are stored in a stationary array of pipe lengths. The method of claim 42 includes disposing some of the pipe lengths in respective upwardly open notches in a set of stationary pipe supports at spaced stations to create a first bottom layer of stored pipe lengths. The method of claim 42 also includes disposing further pipe lengths in similarly notched pipe support sets placed at each station atop supports therebelow to create a stationary array of plural layers of plural pipe lengths. As noted above, Woolslayer et al describe a pipe storage arrangement in which the entire multi-layer array of stored pipes must be moved. Thus, claims 42-44 are allowable over Woolslayer et al. under §102(b) and under §103 even when that reference is considered with others of the cited references.

Present claim 49

Method claim 49 states that the operation of raising a pipe length from its pipe supports includes moving the pipe length to a state of support on a carriage which is movable along a path laterally from, adjacent to and parallel to the array in which the pipe length was stored and from which it has been raised. Woolslayer et al. do not disclose or suggest a carriage for a pipe length which has been moved from its stored location. It follows that Woolslayer do not disclose or suggest that such a carriage moves along a path laterally from the array, i.e., laterally from the position from which the pipe was raised out of the array. Claim 49 is allowable over Woolslayer et al.

Present claims 17-35, 45-58, 50 and 51

Claims 17-35 are dependent on claim 16, directly or indirectly. Claims 45-48 are dependent on claim 42, directly or indirectly. Claims 50 or 51 are dependent on claim 49. As demonstrated above, claims 16, 42 and 49 are allowable. Hence, these dependent claims are also allowable.

Reasons for withdrawal of the restriction requirement affecting claims 36-41.

As noted in the opening remarks above, the Office is understood to have invited applicants to show that "withdrawn" claims 36-41 are allowable over Woolslayer et al. as a reason for the Office to withdraw the restriction requirement to which these claims now are subject. A demonstration that claims 36-41 are allowable over Woolslayer et al. is a demonstration that there is no examination efficiency benefit to the Office by maintaining the restriction requirement. Examination efficiency must be shown to exist because that situation is the basis for the Office to exercise its discretion to require restriction. See the remarks presented in applicant's earlier filed Response to Restriction Requirement dated October 30, 2003.

Stated briefly apparatus claim 36 patentability defines over Woolslayer et al. for at least the reasons stated above for allowance of method claim 49. More specifically, claim 36

describes a drill pipe storage and handling apparatus for a well drilling rig which includes a track extending from adjacent the drilling rig to an end remote from the rig. To the extent Woolslayer et al. describes a track, it is the track defined by rails 4, which is parallel to the nearest side of drilling derrick 2, and so the track does not extend away from the drilling rig. Claim 36 describes that there is an elongate carriage adapted to travel along the track and to support a pipe length in a position disposed longitudinally with respect to the track, i.e., parallel to the track. To the extent that Woolslayer disclose a carriage movable along the track, the carriage is the base for the array of stored pipes in which each pipe length extends perpendicular to the length of the track.

Further, claim 36 describes an arrangement in which there is a pipe storage bin (in which pipe lengths are stored in an array of plural layers of pipe with plural pipes in each layer) disposed laterally of one end of the track. To the extent that Woolslayer et al. describes a pipe storage bin, it is carried on the track defined by rails 4; the track defined by rails 4 is not laterally of, or to the side of, the pipe storage bin, but instead is always under the bin. Claim 36 also describes the presence of a pipe lifter operable to move individual pipe lengths between the array of pipes stored in the bin and the carriage. Woolslayer et al. disclose no such pipe lifter; their carriage is always under the bin and its array of stored pipes and it supports the bin, and so they do not disclose and cannot suggest that a pipe length can be moved from the bin to a place of support on the carriage. It is apparent that claim 36, and also claims 37-41 dependent thereon, is allowable over Woolslayer et al.

Claims 36-41 were substantively allowed by the Office in its examination of them in the predecessor PCT application, as shown by the IPER (Form 409) copy submitted to the Office with applicant's earlier filed Response to Restriction Requirement.

Therefore, applicants assert, consistent with MPEP 803, that the Office must examine claims 36-41 with claims 1-35 and 42-53 because, in light of the foregoing, the Office cannot (as

it is required to do) demonstrate that it will suffer a "serious burden" by examining all of claims 1-53. There can be no serious burden because claims 36-41 have been shown to be allowable.

Withdrawal of the restriction requirement affecting claims 36-41 is requested for the reasons set forth above and for the reasons stated in applicants' earlier filed Response to Restriction Requirement dated October 30, 2003.

Conclusion

Allowance of claims 1-53 is solicited.

Should the Office perceive that claims 1-53 are not allowable herein, the favor of a telephone call to the undersigned is requested. That favor is requested because of the delays in allowance of this application occasioned by the Office's failure to recognize that the issues raised by the Office herein were addressed and resolved in the Office's formal and substantive examination of claims 1-53 in the predecessor PCT application. Applicants desire to cooperate with the Office so that further such delays can be avoided.

Respectfully submitted,
CHRISTIE, PARKER & HALE, LLP

By _____
Hayden A. Carney
Reg. No. 22,653
626/795-9900

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